Abstract

Background: phenolic compounds are the large group of natural substances of plant including flavonoeids, tannins, anthociyanins and etc that are usually found in fruits, vegetables, leaves and other parts of plants. The varieties of biological activity of these compounds, including antioxidant, anti-microbial anti Inflammation and vasodilator, have proven according to the results of many studies.

Objectives: The aim of this study is the survey of the quantity and quality of compounds of active of chemical, and antioxidant properties of *Artemisia Spergicia* essential oil (EO).

Materials and Methods: The *A.Spergicia EO* was analyzed by gas chromatogram/mass spectrometry (GC-MS). The antioxidant activity and total phenolic and flavonoeids content in two stages of befor and after flowering were evaluated. Also was determined the yields of essential oil to percentage and based on the level of dry plant and the volume of oil extracted.

Results: Results of Analysis *A.Spergicia EO* by gas chromatogram-mass spectrometry showed that the spachulenol 1 H cycloprop (18.39%) and bicyclo hexan-3- en,4-met(26.16%) respectively are prominent compounds EO of *Artemisia* in the stages of before and after flowering. Level of total phenolic of EO was(23.61±1.08 µg/ml)and17.71±0.9 (µg/ml) respectively for the stages of before and after flowering. Also level of content of felavonoeids of EO in the stage of before flowering (37.27±1.7µg/ml) and after flowering was (29.04±1.3µg/ml). This EO was able to reduce the free radical of DPPH with an IC_{50}86.14±2.23 and96.18±2.61µg/ml respectively in before and after flowering.Yield of EO in two stages,befor and after flowering was respectively 0/5% and 0/6%.

Concloution: results have showed that *A.S pergicia EO* before and after flowering has appropriate antioxidation ability and therefore it can be used in combination with other preservative to protect food materials against variety of oxidative systems.

Keywords: *Artemisia Spergicia*, GC/MS, EO, Antioxidation, Phenolic compounds